

| | Result | POWHEG | MADGRAPH5_aMC@NLO |
|----------------------------------|-----------------------------|-------------------|-------------------|
| Fiducial phase space | | | |
| $\sigma_{t\bar{t}c\bar{c}}$ [pb] | $0.207 \pm 0.025 \pm 0.027$ | 0.187 ± 0.038 | 0.189 ± 0.032 |
| $\sigma_{t\bar{t}b\bar{b}}$ [pb] | $0.132 \pm 0.010 \pm 0.015$ | 0.097 ± 0.021 | 0.101 ± 0.023 |
| $\sigma_{t\bar{t}LL}$ [pb] | $5.15 \pm 0.12 \pm 0.41$ | 5.95 ± 1.02 | 6.32 ± 0.94 |
| R_c [%] | $3.01 \pm 0.34 \pm 0.31$ | 2.53 ± 0.18 | 2.43 ± 0.17 |
| R_b [%] | $1.93 \pm 0.15 \pm 0.18$ | 1.31 ± 0.12 | 1.30 ± 0.16 |
| Full phase space | | | |
| $\sigma_{t\bar{t}c\bar{c}}$ [pb] | $10.1 \pm 1.2 \pm 1.4$ | 9.1 ± 1.8 | 8.9 ± 1.5 |
| $\sigma_{t\bar{t}b\bar{b}}$ [pb] | $4.54 \pm 0.35 \pm 0.56$ | 3.34 ± 0.72 | 3.39 ± 0.66 |
| $\sigma_{t\bar{t}LL}$ [pb] | $220 \pm 5 \pm 19$ | 255 ± 43 | 261 ± 37 |
| R_c [%] | $3.36 \pm 0.38 \pm 0.34$ | 2.81 ± 0.20 | 2.72 ± 0.19 |
| R_b [%] | $1.51 \pm 0.11 \pm 0.16$ | 1.03 ± 0.08 | 1.03 ± 0.09 |